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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,562

09/27/2006

Tunenobu Kimoto

295885US3PCT

4707

22850

7590

05/23/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

CHANDRA, SATISH

ART UNIT

PAPER NUMBER

1792

NOTIFICATION DATE

DELIVERY MODE

05/23/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/594,562		KIMOTO ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	SATISH CHANDRA		1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7 - 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 7, 8, 12, 13, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al (US 4,976,216).**

#### **Maida et al discloses:**

A susceptor that is used in semiconductor vapor phase growth, comprising: a barrel type susceptor 3 (Fig 4) having a plurality of surfaces 5 on an outer side of each of which a plurality of substrates 7 is freely disposed; and a member 10 that has the barrel type susceptor disposed inside thereof and surfaces each of which is oppositely disposed tilting in a same direction and a same distance from the surfaces as each of the surfaces of the barrel type susceptor 3. The barrel type susceptor 3 is fixedly held in position within the member 10 by a rotatable shaft 6 at the peripheral end of the reactor.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 7 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kong et al (US 6,217,662) in view of Maeda et al (US 4,976,216).**

**.Kong et al discloses:**

**Regarding Claim 7**, a susceptor (42 in Fig. 2, 50 in Fig.6) that is used in semiconductor epitaxial growth ( Figs 1, 2, 4, 6, 7), comprising: a barrel type susceptor (42 in Fig. 2, 50 in Fig.6) having a plurality of surfaces (43 in Fig.2, 55 in Fig. 7) on an outer side of each of which a plurality of substrates (Fig. 2, plurality of wafer pockets 44 for holding the substrates, 56, wafer pockets in Fig.7 and Fig. 1 shows disc shaped wafers (27)) is freely disposed;

**Regarding Claims 8 and 13**, each of surfaces on a side of the barrel type susceptor of the member allows placing a plurality of substrates (see Fig. 2, plurality of wafer pockets 44 for holding the substrates, 56, wafer pockets in Fig.7 and Fig. 1 shows disc shaped wafers (27))

**Regarding Claims 9 and 14**, either one or both of the barrel type susceptor and the member are a heater (46) (Col. 5, lines 63 – 67; Col. 6, Line 5 - 9).

**Regarding Claims 10 and 15**, the susceptor is made of a base material containing graphite (Col. 6, Line 10-24).

**Regarding Claims 11 and 16**, the susceptor is covered with polycrystalline silicon carbide or polycrystalline tantalum carbide (Col. 6, Line 10-24).

**Regarding Claim 12**, a susceptor (42 in Fig. 2, 50 in Fig.6) that is used in semiconductor epitaxial growth, comprising: a barrel type susceptor (42 in Fig. 2, 50 in Fig.6) having a plurality of surfaces (43 in Fig.2, 55 in Fig. 7) on an inner side of each of

which a plurality of substrates (Fig. 2, plurality of wafer pockets 44 for holding the substrates, 56, wafer pockets in Fig. 7 and Fig. 1 shows disc shaped wafers (27)) is freely disposed;

**Kong et al does not teach:**

**Regarding claim 7 and 12,** a member that has the barrel type susceptor disposed inside thereof and surfaces each of which is oppositely disposed tilting in a same direction as each of the surfaces of the barrel type susceptor wherein a same distance from the surfaces as each of the surfaces of the barrel type susceptor. The barrel type susceptor is disposed at the peripheral portion thereof.

**Regarding claims 17 and 18,** the susceptor is fixedly held in position within the said member.

**Maida et al discloses:**

**Regarding claims 7, 12, 17 and 18,** a susceptor that is used in semiconductor vapor phase growth, comprising: a barrel type susceptor 3 (Fig 4) having a plurality of surfaces 5 on an outer side of each of which a plurality of substrates 7 is freely disposed; and a member 10 that has the barrel type susceptor disposed inside thereof and surfaces each of which is oppositely disposed tilting in a same direction and a same distance from the surfaces as each of the surfaces of the barrel type susceptor 3. The barrel type susceptor 3 is fixedly held in position within the member 10 by a rotatable shaft 6 at the peripheral end of the reactor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a barrel type susceptor fixedly held in position

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within the member at the peripheral end thereof wherein the barrel type susceptor is within a member having the same distance from the surfaces as each of the surfaces of the barrel type susceptor in the apparatus of Kong et al as taught by Maida et al. It would have been obvious to a skilled artisan to combine prior art elements to yield predictable results such as providing a barrel type susceptor fixedly held in position within the member at the peripheral end thereof wherein the barrel type susceptor is within a member having the same distance from the surfaces as each of the surfaces of the barrel type susceptor in the apparatus of Kong et al as taught by Maida et al.

The motivation for providing a barrel type susceptor fixedly held in position within the member at the peripheral end thereof wherein the barrel type susceptor is within a member having the same distance from the surfaces as each of the surfaces of the barrel type susceptor in the apparatus of Kong et al as taught by Maida et al is to optimize the apparatus of Kong et al to form a uniform layer of film on the substrates.

### ***Response to Arguments***

Applicant's arguments with respect to claims 7 - 18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 11 – 176757 to Naoya; US 4,596,208 to Wolfson et al; US 6,738,683 to Dunn; US 5,441,571 to Ohta et al; US 5,851,589 to Nakayama et al; US 4,468,283 to Ahmed; US 6,110,289 to Moore; US 5,288,364 to Burt et al..

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SATISH CHANDRA whose telephone number is (571)272-3769. The examiner can normally be reached on 8 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, Primary Examiner, Jeffrie R. Lund can be reached on 571-272-1437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrie R. Lund/  
Primary Examiner, Art Unit 1792

Satish Chandra

Jeffrie R. Lund  
Primary Examiner

SC  
5/18/2008